

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: B.O. Yavuz et al : GROUP ART UNIT (Parent Case): 1754
SERIAL NO: :
FILING DATE: June 13, 2001 : EXAMINER (Parent Case): T. Dunn,
TITLE: ZEOLITE-CONTAINING OXIDATION : C. Ildebrando
CATALYST AND METHOD OF USE : ATTY DKT: 3638G

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231

June 13, 2001

Dear Sir:

Please amend the above-captioned application, submitted concurrently herewith, as follows.

In The Specification

Page 1, delete the paragraph headed CROSS-REFERENCE TO RELATED APPLICATION, including the heading (lines 3-6), and replace it with the following.

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of Application Serial Number 08/458,052, filed June 1, 1995, which is a division of Application Serial Number 08/255,289, filed June 7, 1994 (U.S. Patent 6,248,684), which is a continuation of Application Serial Number 08/038,378, filed March 29, 1993, which is a continuation-in-part of Application Serial Number 07/973,461, filed November 19, 1992.

A marked-up copy of this paragraph, showing the changes, is attached hereto.

In The Claims

Without prejudice to the invention defined therein, please cancel claims 1-38 and substitute the following new claims therefor.

39. (New) A catalyst composition for treating a diesel engine exhaust stream containing gaseous hydrocarbons and a volatile organic fraction comprises a refractory carrier on which is disposed a coating of a catalytic material comprising: bulk ceria having a BET surface area of at least about 10 m²/g, Beta zeolite other than iron-doped Beta zeolite, and a catalytic metal selected from the group consisting of platinum and palladium.

40. (New) The catalyst composition of claim 39 further including bulk alumina having a BET surface area of at least about 10 m²/g.

41. (New) The catalyst composition of claim 39 wherein the zeolite comprises a three-dimensional zeolite characterized by pore openings whose smallest cross-sectional dimension is at least about five Angstroms and having a silicon to aluminum atomic ratio of greater than 5.

42. (New) The catalyst composition of claim 39 wherein the zeolite is doped with a catalytic metal selected from the group consisting of platinum and palladium.

43. (New) The composition of claim 39 wherein the zeolite is doped with a catalytic moiety selected from the group consisting of one or more of hydrogen, platinum, rhodium, palladium, ruthenium, osmium, iridium, copper, nickel, chromium and vanadium.

44. (New) The catalyst composition of claim 41, claim 42 or claim 43 further including bulk alumina having a BET surface area of at least about 10 m²/g.

45. (New) The catalyst composition of claim 44 wherein the zeolite comprises from about 10 to 90 percent by weight, the alumina comprises from about 60 to 5 percent by weight, and the ceria comprises from about 60 to 5 percent by weight, of the combined weight of the zeolite, the alumina and the ceria.

46. (New) The catalyst composition of claim 44 wherein the zeolite comprises from about 20 to 70 percent by weight, the alumina comprises from about 50 to 20 percent by weight, and the ceria comprises from about 50 to 20 percent by weight, of the combined weight of the zeolite, the alumina and the ceria.

47. (New) The composition of claim 39 wherein the Beta zeolite is hydrogen-doped Beta zeolite.

48. (New) The composition of claim 39 wherein at least one catalytic metal moiety selected from the group consisting of from about 0.1 to 60 g/ft³ platinum and from about 0.1 to 200 g/ft³ palladium is dispersed on the ceria, and wherein there is 10 to 90 percent by weight of zeolite.

49. (New) The composition of claim 39 wherein the zeolite is characterized by pore openings whose smallest cross-sectional diameter is at least about five Angstroms.

50. (New) The catalyst composition of claim 39, claim 40 or claim 41 wherein the zeolite is doped with platinum.

51. (New) The catalyst composition of claim 50 wherein the zeolite is doped by ion-exchanging the zeolite with cationic platinum.

52. (New) The catalyst composition of claim 50 wherein the refractory carrier has a plurality of parallel exhaust flow passages extending therethrough and defined by passage walls on which the catalytic material is coated, wherein platinum is present in a quantity sufficient to provide from about 0.1 to 60 g/ft³ of platinum.

53. (New) The catalyst composition of claim 52 wherein the platinum is present in an amount of from about 5 to 60 g/ft³.

55. (New) The catalyst composition of claim 44 wherein the zeolite is disposed in a discrete layer which is overlain by one or more discrete layers containing the alumina and the ceria.

57. (New) The catalyst composition of claim 39, claim 40 or claim 41 wherein the refractory carrier has a plurality of parallel exhaust flow passages extending therethrough and defined by passage walls on which the catalytic material is coated, and comprising dispersed palladium carried on the catalytic material in a quantity of from about 0.1 to 200 g/ft³.

58. (New) The catalyst composition of claim 57 wherein the dispersed palladium is present in an amount of from about 20 to 120 g/ft³.

59. (New) A method for treating a diesel engine exhaust stream containing a volatile organic fraction comprises contacting the stream with a catalyst composition under oxidizing conditions including a temperature high enough to catalyze oxidation of at least some of the volatile organic fraction, the catalyst composition comprising a catalytically effective amount of ceria having a BET surface area of at least about 10 m²/g and a catalytically effective amount of a Beta zeolite other than iron-doped Beta zeolite.

60. (New) The method of claim 59 wherein the catalyst composition further comprises a catalytically effective amount of alumina having a BET surface area of at least about 10 m²/g.

61. (New) The method of claim 59 wherein the Beta zeolite comprises from about 10 to 90 percent by weight, the alumina comprises from about 60 to 5 percent by weight, and the ceria comprises from about 60 to 5 percent by weight, of the combined weight of the zeolite, the alumina and the ceria.

62. (New) The method of claim 59 or claim 60 wherein the zeolite is doped with a catalytic moiety selected from the group consisting of one or more of hydrogen, platinum, rhodium, palladium, ruthenium, osmium, iridium, copper, nickel, chromium and vanadium.

63. (New) The method of claim 55 wherein the catalytic moiety comprises platinum.

64. (New) The method of claim 59 or claim 60 wherein the catalyst composition is disposed on a refractory carrier having a plurality of parallel exhaust flow passages extending therethrough and defined by passage walls on which the catalytic material is coated, and the catalytic moiety comprises platinum and is present in a quantity sufficient to provide about 0.1 to 60 g/ft³ of platinum.

65. (New) The method of claim 64 wherein the platinum is present in the amount of about 5 to 60 g/ft³ of platinum.

66. (New) The method of claim 64 wherein the platinum is present in the amount of from about 0.1 to 5 g/ft³.

67. (New) The method of claim 59 wherein the zeolite is disposed in a discrete layer which is overlain by one or more discrete layers containing the alumina and the ceria.

68. (New) The method of claim 59 wherein the ceria and the alumina each has a BET surface area of from about 25 m²/g to 200 m²/g.

69. (New) The method of claim 59 or claim 60 wherein the temperature of the exhaust stream initially contacted with the catalyst composition is from about 100°C to 800°C.

AMENDED PARAGRAPH OF THE SPECIFICATION
SHOWING CHANGES

[CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of application Serial No. 07/973,461, filed November 19, 1992.]

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